

REMARKS

This is in response to the Office Action of April 9, 2007. The position of the formula in claim 1 is rearranged to facilitate understanding. The features of claims 3 and 13 are incorporated into claim 1, and claims 2, 3, and 13 are accordingly cancelled, without prejudice. No new matter is introduced by this Amendment. Claims 1, 4-12, and 14 are pending in the present application, of which claims 4-9 stand withdrawn from consideration. Reconsideration of the application, as amended, is respectfully requested.

Rejection under 35 U.S.C. § 112, first paragraph

Claims 1-3 and 10-14 were rejected under 35 U.S.C. § 112, first paragraph. This rejection is respectfully traversed. The language to which the Examiner objected on page 2 of the Office Action has clear basis in the original disclosure in the specification. Specifically, Applicant discloses in lines 3-8 on page 29 of the specification "... to obtain a thermoplastic resin film having a width of 550 mm (the neck-in was 50 mm on the right and the left). The thermoplastic resin film passed through an adjustment drum, then, 30 mm was removed as selvage from both ends by a cutter...." The language in question – "over 490 mm in the width direction" – was calculated by the formula: $490\text{ mm} = 550\text{ mm}$ (width of the thermoplastic resin film) – 30 mm (removed parts as selvage) $\times 2$. Accordingly, it is respectfully submitted that the requirements of the first paragraph of 35 U.S.C. § 112 are met. Reconsideration and withdrawal of this ground of rejection are earnestly solicited.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 1-3 and 10-14 were rejected under 35 U.S.C. § 112, second paragraph. This rejection is respectfully traversed.

The Examiner questions what characteristic of the optical film is less than or equal to 3.4×10^{-5} . As disclosed in lines 16-23 on page 1 of the specification, LCDs and other flat panel displays contain, among other things, a phase plate. The phase plate may be obtained by stretching a thermoplastic resin film, such as a polycarbonate film. This stretching operation imparts a certain amount of retardation to the film. Retardation in this sense is also referred to as a phase difference. As explained on page 2, lines 14-21 of the specification, the amount of retardation provides an index for indicating optical distortion of thermoplastic resin films. The symbol "Re" designates "retardation amount." As pointed out in lines 7-16 on page 5 of the specification, when the maximum value of Re becomes 0 nm, it means that there is no in-plane optical distortion. The present invention involves the discovery that it is important to control Re in relation to an angle α made by the slow phase axis and the extruding direction of a thermoplastic resin. A value expressed by the formula $[\sin^2 2\alpha] \times [\sin^2 (\pi \cdot \text{Re}/550)]$ is used to correlate properties ' α ' and 'Re' that provide low optical distortion in LCDs and other large flat panel displays.

Moreover, as explained in the specification, from line 23 on page 15 through line 20 on page 16, when the Z value is a predetermined value or less, a problem of color absence of a liquid crystal display to be obtained becomes smaller, and color unevenness and color absence are not visually sensed, so that the display quality is remarkably improved. Also, color

unevenness and color absence after a durability test both become smaller, which is a desirable result.

It is respectfully submitted that based upon this explanation, the requirements of the second paragraph of 35 U.S.C. § 112 are met. Reconsideration and withdrawal of this ground of rejection are therefore solicited.

Rejection Under 35 U.S.C. § 102(b)

Claims 1-3 and 10-14 were rejected under 35 U.S.C. § 102(b) as being anticipated by JP 2001-337221 to Sawada Takahiko (JP '221). This rejection is respectfully traversed.

JP '221 relates to small size films for optics applications. As disclosed in paragraph [0011], such films have a width, for instance, of 25 millimeters. In contrast, the optical film of the present invention is a large size flat panel display. Claim 1 herein requires measurement over 10 meters (10,000 millimeters). Due to these enormous differences in scale, the present technology differs in kind, rather than in degree, from the technology of JP '221.

The Examiner's attention is respectfully directed to the English-language translation of Table 1 of JP '221¹, which was attached to the Amendment filed herein on August 7, 2006. As is apparent therefrom, JP '221 discloses optical films made of norbornene-based resin. Disclosed optical films have an Re of 3.5 to 6.5 (Example 1), 2.3 to 3.8 (Example 2), and 3.0 to 4.7 (Example 3). In contrast, in the present claims as now amended, the optical film has an Re of 2 or less. Example 4 of JP '221 relates to an optical film of olefin-N-alkylamide-based

¹ It is noted that the translation erroneously refers to the source of the table as "Takahiko ('211)".

resin. The optical film of the present invention is now restricted to optical films made of alicyclic structure-containing polymers. Therefore, since the present claims differentiate over reference Examples 1-3 with respect to Re and over reference Example 4 with respect to optical film polymer, JP '221 does not anticipate the presently claimed invention.

The present invention provides a long, wide film having a low Z value – where $Z = [\sin^2 2\alpha] \times [\sin^2 (\pi Re/550)]$ – over the whole surface of the film. See the specification, page 28, line 12 to page 29, line 9.

In accordance with the presently claimed invention, an optical film is provided in which color unevenness after a durability test is absent or greatly reduced. This is accomplished with a thermoplastic resin film that satisfies the formula $[\sin^2 2\alpha] \times [\sin^2 (\pi Re/550)] \leq 3.4 \times 10^{-5}$ over the whole surface of the film, when an angle made by the extruding direction of the thermoplastic resin film from the melt extruding machine and a slow phase axis at each point is α and a retardation amount at each point is Re. This beneficial effect of the present invention is neither disclosed nor suggested by JP '221.

Withdrawal of the rejection of claims 1-3 and 10-14 under 35 U.S.C. § 102(b) as being anticipated by JP 2001-337221 is in order and is earnestly solicited.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Richard Gallagher, Registration No. 28,781, at the telephone number below, in order to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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